

CLAIMS

1. A purified thermostable DNA polymerase capable of DNA synthetic activity, said enzyme derived from the eubacterium *Thermotoga neapolitana*.

2. The polymerase of Claim 1, wherein said polymerase is further capable of 3' exonuclease activity.

3. The polymerase of Claim 1, wherein said polymerase is further capable of 5' exonuclease activity.

4. The polymerase of Claim 1, wherein said polymerase comprises the amino acid sequence of SEQ ID NO:2.

5. The polymerase of Claim 1, wherein the specific activity of said synthetic activity is approximately 100,000 units/mg.

6. A purified thermostable non-naturally occurring DNA polymerase derived from the eubacterium *Thermotoga neapolitana*.

7. The polymerase of Claim 6, wherein said polymerase is capable of 3' exonuclease activity.

8. The polymerase of Claim 6, wherein said polymerase is capable of 5' exonuclease activity.

9. The polymerase of Claim 6, wherein said polymerase has reduced levels of 3' exonuclease activity.

10. The polymerase of Claim 6, wherein said polymerase lacks significant 5' exonuclease activity.

11. The polymerase of Claim 6, wherein said polymerase comprises an amino acid sequence selected from the group consisting of SEQ ID NOS:8, 16, 19, 23, 26, 29, 33 and 35.

12. An oligonucleotide comprising the nucleic acid sequence of SEQ ID NO:1, said nucleotide sequence encoding a thermostable DNA polymerase.

13. The oligonucleotide of Claim 12, wherein said sequence is modified such that the encoded polymerase lacks significant 5' exonuclease activity.

14. The oligonucleotide of Claim 13, wherein said modified sequence comprises the nucleotide sequence of SEQ ID NO:7.

15. The oligonucleotide of Claim 12, wherein said sequence is modified such that the encoded polymerase displays reduced levels of 3' exonuclease activity.

16. The oligonucleotide of Claim 15, wherein said modified sequence is selected from the group consisting of SEQ ID NOS:7, 15, 18, 22, 25, 28, 32 and 34.

17. A recombinant DNA vector comprising an oligonucleotide having the nucleic acid sequence set forth in SEQ ID NO:1, said nucleotide sequence encoding a thermostable DNA polymerase having DNA synthetic activity.

18. The recombinant DNA vector of Claim 17, wherein said nucleic acid sequence is modified such that the encoded thermostable DNA polymerase lacks significant 5' exonuclease activity.

19. The recombinant vector of Claim 18, wherein said modified sequence comprises SEQ ID NO:7.

5 20. The recombinant DNA vector of Claim 17, wherein said nucleic acid sequence is modified such that the encoded thermostable DNA polymerase exhibits reduced levels 3' exonuclease activity.

21. The recombinant vector of Claim 20, wherein said modified sequence is selected from the group consisting of SEQ ID NOS:7, 15, 18, 22, 25, 28, 32 and 34.

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